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ABSTRACT

Research has consistently shown that vocabulary knowledge, including both word recognition skills and understanding of word meaning, is highly predictive of achievement in other aspects of reading--oral and silent reading and comprehension. The importance of instruction in word recognition and decoding has been recently demonstrated by the rise in the National Assessment of Educational Progress reading scores of fourth grade students between 1970 and 1980. In addition to direct training, students also need exposure to challenging reading materials in order to develop effective vocabularies. Children from minority and low income families, especially, need both direct and contextual vocabulary instruction if they are to become good adult readers. (MM)

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Vocabularies for Reading: How Large? What Kind?

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IRA Invited Address

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I am honored to be here. I am particularly delighted to be addressing the members of IRA on vocabulary - one of the oldest and yet one of the newest areas of research and experimentation in reading. My mentor and beloved teacher, Edgar Dale, a leading scholar on vocabulary, has been challenging me for years with: Why I and my fellow reading people were not paying more attention to vocabulary in the teaching of reading? This talk will give me an opportunity to attempt a reply to him, to you, and to myself -- on this very important topic.

I think you should know also that when Jack Cassidy, the president of IRA, called to say he would like me to talk on vocabulary, and that I could talk on word recognition or word meaning, I answered -- yes. I would be delighted, I said, leaving open the kind of vocabulary I would talk about. For I wanted to talk about both -- about word recognition and word meaning -- how they develop over time; how they relate to the reading process, and how they relate to the teaching of reading.

I will begin, then, with a brief overview of the two vocabularies that are essential for reading -- word recognition (and decoding) and word meaning. One way to view these is in Marshall McLuhan's terms -- as the medium and the message. Word Recognition may be thought of as the medium in the reading process, the medium that convery the messages;

and word meaning as the message itself.

At the preliterate stage -- before reading skills have been acquired -- knowledge of words and their meanings is considerable. A recent estimate is that average 6 year olds know, i. e., understand and use, about 6000 different words. Their ability to derive meaning from spoken words is high. Thus, before they read, most children can listen to and understand good children's literature, TV shows enjoyed by adults, conversations, and the like.

And yet it takes the typical child about 9 years, when in grade 4, to recognize in print only about half of these words -- 3000 (Dale and Chall, in Press). Better reading programs and an earlier start may make it possible for children who complete grade 3 to recognize more than 3000 words. But we seem not to have found ways whereby typical 9 year olds can read with fluency -- i. e., recognize easily all of the words they know, from hearing and speaking -- about 10,000 words.

Thus, for the typical child through grade 3 (and for some children well into the intermediate grades) the medium still lags behind the message. Most children in the primary grades understand more words than they recognize (and decode). But at about grade 4 or 5, for most children, the major hurdle shifts to the message -- the word meanings. Although there may be some individuals who are still struggling with the medium, most begin to struggle with the message. The shift takes place as the reading materials include content textbooks that use more unfamiliar, rare, specialized, abstract, literary and bookish words.

I review this basic knowledge about the two vocabularies for reading because it tends to be forgotten now and again, or overlooked altogether. Thus Bruno Bettleheim, in his recent book On Learning to Read: The Child's Fascination with Meaning (1982) decries the fact that primers are not exciting for children, because their vocabularies are highly controlled. He argues for primers with larger vocabularies on the grounds that first graders' meaning vocabularies are in the thousands, while the primer vocabularies are barely in the hundreds. Others, well known in the field of reading, have argued in a similar manner. Basing their theories of reading on the primary importance of language and meaning--at all stages of development--they argue that the extensive vocabularies of children when they first begin to read can and should be used without control in their readers from the very start. This can be done, they say, because most of the children already know the meanings of the words. A further benefit comes from the child's motivation since larger vocabularies permits the use of more interesting and mature stories.

Another position, the predominant one for more than 50 years, and followed by authors and publishers of most of the current widely used basal readers is that learning to recognize words is a major task in itself even when the meanings are known. Thus the printed forms of the words are introduced gradually, and also in "interesting" stories.

Still another position is to "spped up" the learning of word recognition by early and systematic teaching of the relationship between letters and sounds (decoding phonics), along with the reading of interesting stories. Indeed, recent studies of vocabularies of basal readers

indicate that most of the widely used basal series have during the past decade about doubled the number of words in their grade 1 programs, following the considerable increase in decoding instruction.

All of these positions have been prominent at one time or another in the history of reading instruction in the United Sates and in other coutries. And all are in use or are being proposed as needed innovation today.

What is the research evidence? From the beginning of educational research, from about the 1920's on, it was found that a strong emphasis on word recognition and analysis (the medium) was highly related to reading achievement--to word recognition, to connected oral reading, and to silent reading comprehension (Chall, 1967).

The 1960's and 1970's was a period of intensive research on beginning reading which generally confirmed these early findings. This research brought with it a series of changes in practice toward a stronger emphases on teaching word recognition and decoding. The changes are found in the design of most basal reading series today which teach more decoding and earlier than in the 1960's. They teach it more systematically. And, they also have heavier vocabulary loads, grade for grade, than in 1960. The textbooks for teachers on methods of teaching reading published in the 1970's contain more information on instruction in word recognition and decoding as compared to those published in the 1950's and 1960's. The "newer" emphasis on word recognition and decoding, as an early goal of beginning reading, was used also in the design of the two widely viewed national TV children's shows, Sesame Street and The Electric Company (Chall, 1983).

What has been the effect of these changes? I should like to propose that these changes have contributed to the reading gains made by children on the National Assessment of Educational Progress in 1980 as compared to scores in 1970. In 1980, 9 year olds (or 4th graders) were significantly ahead of the 1970 cohort on all of the reading tests--on literal comprehension, inferential comprehension, and reading reference skills. There were also some significant gains by the 12 year olds (8th graders) on literal comprehension. But the 17 year olds (12th graders) in 1980 did not do better than those in 1970. In fact, they dropped significantly from 1970 to 1980 on inferential comprehension (NEAP, 1981)

Why the clear improvements by the younger children? And not by the older ones. Many have proposed reasons for this. I should like to suggest a few: beginning reading is easier than later reading--word recognition is easier than word meaning needed at later grades. The higher levels of language development, background knowledge, and cognition assumed by later reading are also important. True. But I think we cannot overlook the changes in the teaching of reading in the earlier grades from which the children seemed to benefit -- more words in readers, earlier and more systematic instruction in decoding, In addition, the 1970's offered children a richer and more caring reading enfvronment -- more services than in the previous decade in early diagnosis and treatment, and more and early educational enrichment, particularly for children of low income families, in such programs as Title I and Head Start.

These changes, together with the changes in teaching--the greater emphasis on teaching beginners the word recognition side of vocabulary, the greater challenge in the increased number of words in the readers grade for grade also contributed to the improvement.

All these contributed, I believe, to better reading scores on the National Assessment by the 9 year olds -- and particularly by minority children and children of low-income families who, according to reports from the National Assessment, made the greater relative gains from 1970 to 1980.

The gains were strong in grade 4 in 1980 because the new practices were followed most widely with this group, since they were in grade 1 in the middle 1970's. The 12 year cohorts (8th graders) when tested in 1980 were, as a group, less affected by the changes because in the early 1970's, when they were in grade 1, fewer teachers were using reading programs with stronger word recognition. Also, by grade 8, many other factors are related to progress -- such as meaning vocabulary, cognitive ability, background knowledge, etc.

That no gains were found for 12th graders-- indeed a significant loss was found--cannot be attributed to the changes in teaching word recognition--for both 12th grade cohorts had been in the primary grades before the heavier emphasis on word recognition.

The data from various standardized tests show similar trends--gains by younger children, lesser gains by upper elementary children, and none, or losses at the high school.

Some people are interpreting these trends to mean that the stronger emphasis on basic skills in the primary grades -- particularly on word recognition and decoding in the 1970's -- is the reason for the decline in inferential comprehension among 12th graders. This is quite puzzling to me for neither 12th grade cohort had an emphasis on basic skills.

I should like to suggest that the evidence is otherwise. The high school students who tested low in inferential comprehension did not participate in any of the stronger word recognition programs. Both the 1970 and 1980 12th grade cohorts were in the primary grades before the 1970's (in the late 60's for the 1980 cohort and 50's for the 1970 cohort) before the stronger word recognition and decoding programs were instituted.

I propose instead that we accept the value of our own efforts-- the recent research evidence tends to confirm the earlier research that a stronger emphasis on teaching the medium side of vocabularies to beginners is constructive. The recent national assessment results and other testing programs confirm what the basic psychological and educational research has been finding for more than half a century: that word recognition vocabularies are important and highly predictive of achievement in other aspects of reading-- connected oral and silent reading and reading comprehension--literal and inferential.

I should like now to to turn to meaning vocabularies. After a relative quiet period, research and writing on word meanings is taking on a new excitement. At this conference alone, we have one preconference, two symposia, and other meetings devoted to vocabulary. Interest in word meanings goes back very far, and has long been studied in psychological and educational research. In the earliest work on the measurement of intelligence, it was found that the highest correlation with verbal intelligence was word meanings. David Wechsler (19), for example, recommended that if the examiner's time is limited and a measure of verbal ability is needed, that the vocabulary subtest, consisting of defining words of increasing difficulty and abstractness, could be subsituted for the total test.

Studies of the factors in reading comprehension have also found consistently, from the 1920's to the present, that vocabulary, or word meanings, is the strongest factor in reading comprehension. (Thorndike,1974). Indeed, a word meaning score was so highly correlated with a reading comprehension score that the word meaning score could be used as a measure of comprehension.

Research on readability has found, over the past 60 years, that vocabulary--based either on word familiarity, word frequency,

word length in syllables or letters, or on difficulty of concepts -- has the highest correlation with comprehension difficulty -- and that these measures of vocabulary difficulty are correlated with each other. Further, that while syntactic and other factors add to the prediction of readability, they do not add much (Chall, 1958; Klare, 1962).

Considerable research is available, also, on the teaching of meaning vocabularies. A classic study by Gray and Holmes in 1938 was conducted on a question that is as timely today as it was then -- whether wide reading or a program of direct vocabulary instruction was more effective. They found, for fourth graders, that direct instruction resulted in significantly larger gains on a vocabulary test, and on comprehension -- in greater "interest and general command of ideas and words in group discussion." (p. 56). The positive effects of direct instruction was especially evident for the children of lower ability.

Subsequent research which tried to test the superiority of one type of direct vocabulary instruction over another began to run into some difficulties. In a review of these vocabulary teaching studies Petty and his associates concluded in 1967 that several methods were effective for teaching vocabulary, but that none was significantly superior to the others.

It is interesting to trace how this conclusion has been interpreted. Few took it as positive evidence for direct teaching of vocabulary. Most seemed to interpret the research rather pessimistically. Because no one method was consistently superior to another, it was

often interpreted to mean that there was little evidence for teaching vocabulary directly. And yet one can make a strong case for the positive nature of the findings. Is it essential for practice that there be one method significantly better than another? As long as they all work, a case be made that teaching vocabulary will help. Paying attention and doing it amy be the essential factor. How exactly to do it may be important for theory, but it may not be for practice.

Some research on vocabulary has been done in the past few decades on the size of vocabulary, what words to teach, how to teach them, whether by word parts or by whole words, etc. I can name only a few: Lorge and Chall (1962), Dale and O'Rourke (1971), Dale and O'Rourke (1981), O'Rourke (1974), Stotsky (1976), Anderson and Freebody (1979), Johnson and Pearson (1978), and Stahl (1982). Essentially, the recent research confirms the earlier, classic research, on meaning vocabularies: that it is of central importance in the development of reading comprehension, and in the readability of texts; and that it can be learned directly, benefiting particularly those of lower ability. And also that it is learned contextually. The research evidence on the importance of word meanings was there almost from the start of the / empirical research. If that is the case, why haven't we done more about teaching meaning vocabularies? --as Edgar Dale has been asking for the past 30 years? Why does it seem to be such a new idea?

This is a hard question and I am mindful that many answers are possible. I believe, though that it might be similar to the holding back on direct teaching of word recognition and decoding--a fear that the natural, holistic process of reading comprehension might be

harmed by doing so and yet the research and practice has found otherwise.

The words to be learned were to be learned in context and from context. Separating out, for direct instruction, such aspects of the reading task as word recognition and analysis or word meanings was not considered the best way.

Thus, the teaching and learning of vocabulary, both word recognition and word meaning, depended mainly upon the contextual and inferential; students were expected to infer the meanings of the words from context.

It would seem to me, although many would view it differently, that the model of reading comprehension found in most of the widely used reading and content textbooks tends toward the global, natural, holistic and contextual. The model resembles the top-down psychological models of reading comprehension, more than the "bottom-up" models, which tend to view reading comprehension as composed of a hierarchy of specifiable parts and skills that can be isolated for instruction, and taught in an order of complexity.

Another reason may have been the low challenge of the basal readers and instructional materials for the content subjects with increasingly lower vocabulary loads and readability for the past several decades (Chall, Conard, and Harris, 1977).

Thus, it may be that our strong emphasis on the value of context in learning words, along with the relatively easy texts, may have kept us from making use of the positive research findings on the value of direct teaching of vocabulary in the development of vocabulary and of reading comprehension.

One of the persistent issues in the research on vocabulary is whether words are learned mainly in context or by direct teaching.

For this, we must turn to research on the number of words known by children in different grades. It would seem to be a rather simple task. And yet it is plagued with difficulties and controversies. The research on vocabulary size goes back to the late 1800's and estimates for the same age group have varied considerably, some studies reporting more than ten times the vocabulary size estimated by others for the same grade.

For first grade, an early estimate was 2,700 words while a later one was 24,000. An early study of third graders found an average of 3600 words, a more recent estimate was 44,000.

There are many reasons for these differences--among them are which dictionaries are simpled--whether abridged or longer unabridged, how one defines words, and how one tests knowledge. In an analysis of these issues, Irving Lorge and I estimated that the very high figures, all based on unabridged dictionaries, are probably too high--and that the more valid estimates are probably closer to the earlier estimates, although somewhat higher. (Lorge and Chall, 1962).

Whether we use the higher or lower estimates of word knowledge, it would seem that learning words cannot be based on direct instruction alone--no matter how beneficial for word knowledge and for reading comprehension. There are too many words to be learned. If we accept a growth of 1000 a year--then about 3 new words would need to be learned each day for the full year and about 6 per day, if we think of a school year of 180 days. Thus, learning through context, particularly wide reading of sufficiently difficult material, is <u>also</u> needed particularly because there are so many words to be learned.

But, because I am suggesting that we look to contextual aids does not mean that we overlook direct teaching of word meanings. Indeed, the research on the value of direct / teaching of vocabulary appears to be strong, particularly for those who do not find it easy to learn on their own. Let us look to some evidence on the value of context--

Carol Chomsky studied, in 1972, the relationship between reading to, and the independent reading of, elementary school children on their language and reading development. She found that those who were read to and who read most for their own pleasure, were highest on a reading achievement test (on vocabulary meaning and reading comprehension) and on language development (syntax). Further, that the highest scores in language and reading and vocabulary were made by those who read or were read to from books whose readability levels were above their own linguistic development.

Similar findings were evident when the level of challenge of textbooks was compared to SAT scores for 11th grade cohorts from 1945 to 1975. We found that textbooks with later copyright dates tended to be easier in challenge than those / published earlier. Only basal readers, which also declined in difficulty from 1935 (and earlier), stopped declining in difficulty around the 1960's. When the SAT scores were compared to the level of challenge of textbooks, we found that the cohorts who used the harder textbooks had the higher SAT scores (Chall, et al. 1977).

These findings were confirmed recently in our NIE study of intermediate grade low-income children in grades 2 to 7. Ethnographic observations of classrooms were compared to gains in reading. We found greater gains in reading comprehension and in vocabulary (word meanings) in classrooms where more varied and more

challenging reading materials were used. When materials below the students' levels were used, less progress in vocabulary and reading comprehension was made (Chall and Snow, 1983).

Thus, we see again why there may have been a kind of plateau in the concern for meaning vocabularies. When textbooks are relatively low in challenge, i.e. they contain few words not known to the students, the need for teaching word meanings may not be intense. As the level of difficulty of textbooks rises in relation to student's abilities, there will probably be a greater need to deal with vocabulary meanings.

Many surveys and research studies point to the fact that certain children--children of low income families, minorities and bi-linguals--have particular difficulty in meaning vocabulary development--particularly at grade 4 and beyond (Chall, 1983). Indeed, in the study of families and literacy referred to earlier, we found that our population of low SES children in grades 2 to 7 made average vocabulary scores at grade 2 and 3, but they began to decelerate at grade 4, and the deceleration was most marked in grades 5, 6 and 7.

To Conclude

Every research, early and recent, points to the importance of vocabulary knowledge--word recognition and word meaning--for reading comprehension. The learning of vocabulary should be the concern of all of us--for its own sake and for the improvement of comprehension.

The teaching of both vocabularies can be roughly viewed as being either contextual or decontextual--i.e., learned from wide reading or from direct instruction.

It seems to me that the research points to the importance of both the contextual and the direct, both ways of teaching vocabulary are necessary. Students need to learn words through reading--indeed through the reading of challenging materials. And they also need to learn how to learn words and word parts.

The research also points to the special word meaning needs of children from minority and low income families. It would seem that various programs of both direct teaching and wide reading to, and by, these children be tried out experimentally.

My final point is that we need to encourage wide reading among all children. So that all will benefit from contextual vocabulary growth, we must make every effort to make books accessible to all children. And we must also see to it that they have the time to read and react to them.

References

Anderson, Richard C. and Freebody, Peter. Vocabulary Knowledge. Urbana, Ill.: Center for the Study of Reading, University of Illinois, Technical Report No. 136, August, 1979.

Chall, Jeanne S. Review of On Learning to Read by Bruno Bettelheim and Karen Zelan. February, 1983.

Chall, Jeanne S. Learning to Read: The Great Debate. McGraw-Hill, 1967.

Chall, Jeanne S. Learning to Read: The Great Debate (Second Edition). New York: McGraw-Hill, 1983.

Chall, Jeanne S. Stages of Reading Development. New York: McGraw-Hill, 1982.

Chall, Jeanne S., Conard, Sue and Harris, Susan. An Analysis of Textbooks in Relation to Declining SAT Scores. Prepared for the Advisory Panel on the Scholastic Aptitude Test Score Decline, jointly sponsored by the College Board and Educational Testing Service, June, 1977. Princeton, New Jersey: College Entrance Examination Board, 1977.

Chall, Jeanne S. and Snow, Catherine. Families and Literacy: The Contribution of Out-of-School Experiences to Children's Acquisition of Literacy, A Final Report to the National Institute of Education, December 22, 1982.

Chall, Jeanne S. and Dale, Edgar, Readability. New York: McGraw-Hill, in press

Dale, Edgar and O'Rourke, J. Techniques of Teaching Vocabulary. Chicago: Field Enterprises, 1971.

Dale, E. and O'Rourke, J., The Living Word Vocabulary. Chicago: Field Enterprises, 1981

Gray, W. S. and Holmes, E. The Development of Meaning Vocabulary in Reading. Chicago: Publications of the Laboratory Schools of the University of Chicago, 1938.

Johnson, D. and Pearson, P. D. Teaching Reading Vocabulary. New York: Holt, Rinehart, and Winston, 1978.

Lorge, Irving and Chall, Jeanne S. "Estimating the Size of Vocabularies of Children and Adults: An Analysis of Methodological Issues," The Journal of Experimental Education, 32: 147-157, Winter, 1963.

National Assessment of Educational Progress. Reading, Thinking, Writing: A report on the 1979-80 assessment. Denver: NAEP, 1981

O'Rourke, Joseph P. Toward A Science of Vocabulary Development. The Hague: Mouton, 1974.

Petty, Walter, Herold, C. and Stoll, E. The State of the Knowledge of the Teaching of Vocabulary, Cooperative Research Project No. 3128. Champaign, Ill: National Council of Teachers of English, 1968.

Stahl, Steven A. Differential Word Knowledge and Reading Comprehension. Unpublished Doctoral Dissertation,1982.Cambridge, MA: Harvard University, Graduate School of Education.

Stotsky, Sandra. Toward More Systematic Development of Children's Reading Vocabulary in Developmental Reading Programs in the Middle to Upper Elementary Grades. Unpublished Doctoral Dissertation. Cambridge, MA: Harvard University, Graduate School of Education, 1976.

Thorndike, Robert L. "Reading as Reasoning". Reading Research Quarterly, 1973-4, 9, #2, pp. 135-147.

Wechsler, David, et. al. Wechsler Intelligence Scale for Children. New York: Psychological Corporation, 1949-1974.